1.5 MAGNETIC MINERALOGY DATABASE – METHODOLOGY

Database of magnetic mineralogy achieved in this stage of the project is a compilation of data obtained from magnetic susceptibility and paleomagnetism measurements on Neogene volcanic rocks.

The study area corresponds to Harghita Mountains and to the southern part of the Gurghiu Mountains, Eastern Carpathians. Over 190 points were processed.

Rock samples core of 2.5 cm diameter have been extracted by the help of a portable drilling device. The orientation of the core samples has been determined by employing a Brunton compass and a solar compass where possible.

Paleomagnetic determinations were conducted in the Paleomagnetism Laboratory of the Bucharest University by the courtesy of Professor Cristian Panaiotu.

The magnetic mineralogy database contains:

- **Localization of outcrops – Latitude (^{o}), longitude (^{o}) and altitude (m)**. Strategy of outcropping was established taking into account the works of Szakács, Seghedi (1995) and the National Geological Map of the Romania, scale 1:200.000 (Sandulescu et al., 1968). Location of the sampled outcrops has been determined with a portable GPS Magellan Explorist 600.
- **Magnetic susceptibility**, **K (SI)** – The observations on the magnetic susceptibility of the rock samples were performed by employing the MFK1A (AGICO) device with an accuracy of 2x10-8SI.
- **Natural remnant magnetization** (**NRM) [A/m]-** NRM determinations have been conducted by the help of the spin magnetometer JR-6A (AGICO) credited with an accuracy of $2x10^{-6}$ A/m.

The vector **natural remnant magnetization** is given by: amplitude MR (A/m), declination (Dge), inclination (Ige).

Magnetic polarities were extracted from orthogonal demagnetization Zijderveld diagrams; N = normal polarity, R = reverse polarity, T = transition direction between the two polarities.

The current WMM values in each sampling point (D_deg, D_min, I_deg, I_min, F_nT) were obtained using the EMM2010 program. This program is offered by NGDC (National Geophysical Data Center) of NOAA and is dedicated for calculating the Earth's magnetic field with a spatial resolution higher than conventional models because it includes the contribution of crustal magnetic field. It highlights wavelength magnetic anomalies of at least 56 km. (http://www.ngdc.noaa.gov/geomag/EMM/downloads/emmSPHDownload.html)

- **External magnetic field strength** was calculated by transformation F nT in F_A / m.
- **Induced magnetization (MI [A/m] = k(SI)*F_A/m.)**
- **Koenigsberger ratio (Q) (Q = NRM/MI)**